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(54) Batch-type heat treatment apparatus and method for controlling it

(57) A reaction tube 2 comprises heaters 31 - 35, and temperature sensors Sin1 - Sin5, Sout1 - Sout5, and receives a wafer boat 23. A controller 100 estimates temperatures of wafers W and temperatures of the temperature sensors Sin1 - Sin5 in 5 zones in the reaction tube 2 corresponding to the heaters 31 - 35 by using the temperature sensors Sin1 - Sin5, Sout1 - Sout5 and electric powers of the heaters 31 - 35. Based on relationships between estimated temperatures of the temperature sensors Sin1 - Sin5 and really metered temperatures, functions f1 - f5 expressing the relationships between the estimated temperatures and the really metered temperatures are given for the respective zones. The functions f1 - f5 are substituted by the estimated wafer temperatures to correct the estimated wafer temperatures. Electric powers to be fed to the respective heaters 31 - 35 are respectively controlled so that the corrected wafer temperatures are converged to target temperature trajectories.

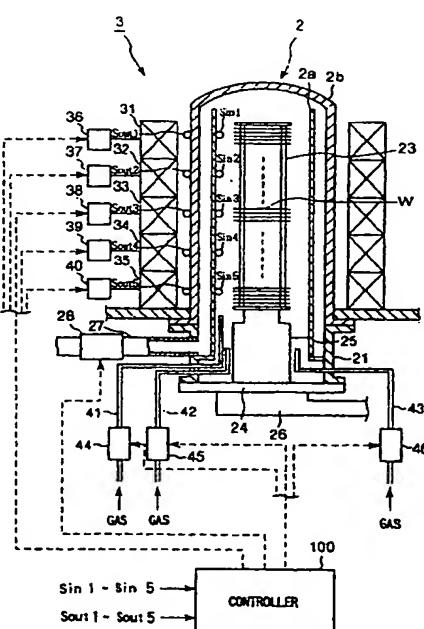


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A, D	US 5 517 594 A (SHAH SUNIL C ET AL) 14 May 1996 (1996-05-14) -----		H01L21/00 F27D19/00 C23C16/46
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	24 November 2003	Patterson, A	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
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ON EUROPEAN PATENT APPLICATION NO.

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